



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/589,199

06/29/2007

Jochen Sang

102063.56904US

6506

23911 7590 07/29/2010
CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300

EXAMINER

SAHA, BIJAY S

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

07/29/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,199	Applicant(s) SANG ET AL.	
	Examiner BIJAY S. SAHA	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The amendment filed on 05/13/2010 has been entered.

Status of Application

The claims 1-20 are pending and the elected claims 1-12 presented for the examination. The non-elected claims 13-20 are withdrawn from the consideration.

Claim Rejections - 35 USC § 102 and 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hori et al EP 0456931 (EP'931).

Regarding claims 1 and 2, EP'931 discloses Coanda spiral flow device (Title), a suction intake (Fig 2 part #1), an outlet (Fig 2 part # 4), a fluid channel extending between the suction intake and the outlet (Fig 2), a drive flow inlet (Fig 2 part # 11), in fluid flow communication with the fluid channel (Fig 2), discharge slit (Fig 2 part #5), surrounded by larger bore (compared to outlet #4) surface (part # 6 Fig 2); by adjusting the threads via the coupling flanges (part # 3 and #9 Fig 2) the clearance of slit (part #5) is adjusted (col 3 lines 25-30).

Because the clearance of the slit can be set to a specified gap by the adjustment of the threaded fastenings, the flow cross section of the discharge slit is obviously variable adjustable.

Because of the threaded fastenings, it would be obvious that the gap of slit (part #5) can be closed by tightening the flanges (#3 and #9), thus a slit that can be completely closed.

Regarding the claim limitation “during operation of the Coanda flow amplifier”, EP’931 discloses difficulty in the conventional design to adjust the slit to an accuracy of 0.01 mm in the assembly operation (page 2 left col, line 46); however, the improved design of forming the sub assemblies A, B and C (Fig 2) allows such an accuracy and permits the occasional assembly of units at the job site (page 3 left col, line 37). Consistent with the EP’931 teaching, slits are adjustable slits; hence, capable of adjustment during the operation.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP’931 in view of McNair et al US 2856234 (US’234).

Regarding claims 1 and 2, EP’931 discloses Coanda spiral flow device (Title), a suction intake (Fig 2 part #1), an outlet (Fig 2 part # 4), a fluid channel extending between the suction intake and the outlet (Fig 2), a drive flow inlet (Fig 2 part # 11), in fluid flow communication with the fluid channel (Fig 2).

Although EP'931 discloses the discharge slit, and makes it adjustable by the threaded coupling flanges.

US'234 discloses liquid proportioning device (Title, examiner considers liquid to be a 'fluid'), a drive-flow discharge slit (Fig 3 part # 28'), a fluid conduit (Fig 3 part # 22), variably adjustable (Fig 3 part # 28, #26), can be completely closed (Fig 3 part # 28, #26).

At the time of invention it would have been obvious to a person of ordinary skill to assemble the Coanda device (EP'931 teaching) utilizing the variable adjusting slit means (US'234 teaching). The suggestion or motivation for doing so would have been to "[d]ispensing materials" with a "controlled mechanical admixture" (US'234).

Regarding the claim limitation "during operation of the Coanda flow amplifier", EP'931 discloses difficulty in the conventional design to adjust the slit to an accuracy of 0.01 mm in the assembly operation (page 2 left col, line 46); however, the improved design of forming the sub assemblies A, B and C (Fig 2) allows such an accuracy and permits the occasional assembly of units at the job site (page 3 left col, line 37). Consistent with the EP'931 teaching, slits are adjustable slits; hence, capable of adjustment during the operation.

Claims 3, 4, 5, 10, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'931 in view of US'234 and Simon US 6739574 (US'574).

Regarding claims 3, 4, 5, 10, 11 and 12, teachings of EP'931 in view of US'234 have been delineated above in the rejection of claim 1.

Although EP'931 in view of US'234 disclose the suction and outlet of the Coanda device and the structure of the device, EP'931 in view of US'234 does not explicitly disclose the flow guiding element.

US'574 discloses a piezo electric valve (Title) for fluid valves (col 1 line 4), control fluid flow through an orifice (col 1 line 15, Figs 4 'on' and 'off'; examiner considers it to be the flow guiding element due to state of 'on' and 'off'), along a longitudinal axis (Fig 1), in a direction opposite to the fluid flow direction in the fluid channel ("transverse" direction col 2 line 19).

At the time of invention it would have been obvious to a person of ordinary skill to assemble the Coanda device (EP'931 teaching) utilizing the variable adjusting slit means (US'234 teaching) and the flow guiding element (US'234 teaching). The suggestion or motivation for doing so would have been to "[c]ontrol flow through an orifice"(US'234).

Regarding the claim limitation of first housing section and the upstream face, examiner considers that the piezoelectric device is attachable, per the US'234 disclosure, to any orifice where the fluid control is required. EP'931 discloses the suction and the discharge of the Coanda device. It would be obvious to a person of ordinary skill to attach the flow control piezoelectric device on the discharge of the Coanda device and form the additional housing the 3rd housing or even multiple housings.

Claims 6, 7, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'931 in view of US'234 and US'574 and further in view of Davies US5433365 (US'365).

Regarding claims 6, 7, 8 and 9, teachings of over EP'931 in view of US'234 and US'574 have been delineated above.

Although EP'931 in view of US'234 and US'574 disclose the suction, exhaust and flow control housing, EP'931 in view of US'234 and US'574 does not disclose the sealing means and the housing attached to the sealing means.

US'365 discloses the fluid nozzle device (Title), sealing means (Fig 1A part # 118 'o' rings), distancing rings (Fig 1A, 1B and 1C part # 145, 149) and expansion

Art Unit: 1793

space (Part # 13), sealing element is in the groove (part # 118), circumferential surface of the flow path (Fig 1A, 1B and 1C part # 145, 149).

At the time of invention it would have been obvious to a person of ordinary skill to assemble the Coanda device (EP'931 teaching) utilizing the variable adjusting slit means (US'234 teaching) and the flow guiding element (US'234 teaching) and utilizing the sealing means in a groove on the circumference (US'365). The suggestion or motivation for doing so would have been to reduce or eliminate the "[n]ozzle structure and nozzle operation"(US'365).

Regarding the claim limitation of the first, second and the third housing, examiner considers that EP'931 discloses the suction and the discharge. Based upon the teaching of EP'931 in view of US'234 and US'574 and further in view US'365, it would be obvious to a person of ordinary skill to attach the flow control piezoelectric device on the discharge of the Coanda device and form the additional housing the 3rd housing or even multiple housings with sealing means.

Summary

The claims 1-12 are rejected.

Response to Arguments

Applicants' arguments filed 05/13/2010 have been fully considered but they are not persuasive.

Applicants argue multiple times about ".....Horii does not teach or suggest that "the flow cross section of the drive-flow discharge slit is variably adjustable *during operation of the Coanda flow amplifier,*"". Examiner points out from the applicants' specification, definition of the discharge slit operation as following:

1. ".....with a Coanda flow amplifier, whereby the proper functioning of the Coanda flow amplifier is ensured even if the mass flow rate of the drive fluid passing through the drive-fluid discharge slit of the Coanda flow amplifier is variable..." (page 3 line 20).
2. ".....The Coanda flow amplifier according to the present systems and methods is characterized by the fact that a flow cross section of its drive-flow discharge slit can be variably adjusted..."(page 3 line 25).
3. "..... Coanda flow amplifier, a variably adjustable flow cross section of the drive-flow discharge slit may be chosen in such a way that the pressure ratio of the output pressure of the drive flow" (page 7 line 24).
4. ".....drive-flow discharge slit may be adjusted so that the pressure ratio between the output pressure of the drive-flow ..." (page 8 line 10).

Art Unit: 1793

5. “.....Coanda flow amplifier is arranged in a fluid line, whereby the flow cross section of the drive-flow discharge slit can be variably adjusted....(page 8 line 22).

6. “....Coanda flow amplifier in which the flow cross section of the drive-flow discharge slit can be variably adjusted....” (page 10 line 120).

Examiner considers that the adjustment of the slits, according to the specification, can be done any time not necessarily "during the operation".

EP'931 (Horii) points out a flaw in the conventional design of the coanda amplifier; specifically, “...it was difficult to construct a coanda device...to achieve a desired flow to an accuracy of the order of 0.01 mm during an assembly operation....(page 2 line 45); further, “....units A, Band C...eliminates the difficulty which is inherent if the coanda slit 5 is adjusted during assembly as in the case of a conventional coanda unit and thus permits the occasional assembly of the unit at the job site, thereby remarkably improving convenience..” (page 3 line 35). Examiner points out that, per the teaching of EP'931, the slit is adjustable; hence, slit is adjustable during the operation as well.

Applicants argue about the US'234 (McNair). Examiner points out that US'234 discloses liquid proportioning device based upon a drive-flow discharge slit and a fluid conduit that is adjustable. Examiner further considers that liquid is also considered as a “fluid”; Hence, Can be utilized as the variable adjusting slit means. The suggestion or motivation for doing so would have been to “dispensing materials” with a “controlled mechanical admixture” in a manner analogous the slits of EP'931.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **BIJAY S. SAHA** whose telephone number is (571) 270-5781. The examiner can normally be reached on Monday- Friday 8:00 a.m. EST - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Curtis Mayes** can be reached on (571) 272 1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BIJAY S SAHA/
Examiner, Art Unit 1793

BSS

July 28, 2010

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793